

Presidential Ponderings

I am excited to write my first column for the SDCTM newsletter. We had a wonderful SD STEM Education conference in Huron in February, where we all learned more about Building Thinking Classrooms. It is my pleasure to announce that the SDCTM Summer Symposium will continue with the BTC theme, but we will be learning about further steps, such as creating your own tasks, managing groups, answering questions, supporting the flow of a task, and finishing a task. This workshop will be facilitated by Jessica Strom (no relation to April Strom). Jessica is a math teacher

at Win-E-Mac Public Schools in Minnesota, and she is a 2021 PAEMST Awardee for Minnesota. The symposium will be held at Dakota Wesleyan University from 8 AM to 4 PM on Tuesday, July 15th. We hope that you can come and bring a colleague. Registration is limited to 42 people. This year, we are offering lunch as part of registration. Registration is \$60 for SDCTM members and \$120 for non-members. To register, go here. If you have questions, please reach out.

If you want to help contribute to mathematics instruction in South Dakota, the South Dakota Department of Education is revising the South Dakota Mathematics Standards this summer. We have many amazing mathematics teachers in our state, and we need your help with the standards revision. The committee will meet in Pierre, June 16 – 18, and members will receive stipends. The deadline for applying to be on the committee is May 16[®]. If you have questions, please contact <u>Hayley Miller</u>. To apply, click <u>here</u>.

One goal that I have as President is to grow our membership. To do this, we need your help. If you know someone who hasn't attended the SD STEM Ed conference recently or ever, please encourage them to come. If you want to see more math presentations, then it is time to do one! Many of you do wonderful things in your classroom, so please share your successes! I am also excited to announce that one of the math featured speakers will be RunningHorse Livingston from Wisconsin. To learn more about him, visit his website. I am still working on finalizing the second featured speaker.

We are the state organization for promoting mathematics education in South Dakota, and the strength of our organization is important during these uncertain times. Thank you for all you do for mathematics education every day!

Sharon Vestal President—SDCTM Sharon.Vestal@sdstate.edu



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Elementary Highlights	2
Higher Ed Viewpoint	3
PAEMST Update	4-5
NCTM Representative Tips	6
Social Media Update	7
Summer PD Opportunities	8-11

Calendar Reminders

Summer Symposium Registration Deadline	Jun. 10
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SDCTM Summer Symposium Jul. 15

Elementary Highlights

Math Facts! Do you know them?

How did you learn your math facts? Do you remember a fun way you learned your facts? Learning math facts is an ongoing conversation when it comes to the elementary world. There is no one way that works for all kids to learn their facts. I recently had a conversation about the math facts struggle with a colleague, which made me reflect on my math days as a kid. I vividly remember my dad making me wooden counting sticks in kindergarten. I took them to school, and my teacher wanted some, so he made her a bunch for the classroom too. At home, I remember playing Yahtzee and marbles with two dice. I don't remember doing math facts in elementary until multiplication when we had songs and little rhymes that helped us learn. I loved them! We also played around the world with flashcards, where we raced a partner. I hated that!

As teachers, we have the pressure to help kids memorize facts. Often, we will use a timed test, or competitions like around the world. Other times, we use incentives like earning an ice cream sundae. Although these work well for some kids, they can cause anxiety for others. I had a parent tell me that her daughter worked every night to learn her facts and earn her ice cream, yet she didn't quite reach her goal. This broke her heart, so on the day of the ice cream party, she took her daughter to get ice cream after school to reward her effort.

I wish I had the answer, but I don't. Rather, I want to challenge you to think about what you are currently doing, and ask, "Is it working?" and "For how many kids?" I think the most important thing is that we don't get stuck in the same system each year because we have different kids with unique needs. Somehow, I learned my facts, as will all children given time. I am hopeful more kids will have positive math memories than negative experiences.

This year, I changed grade levels, which helped me change my perspective. I am teaching preschool and junior kindergarten, where we are learning our numbers and how to count. We just recently learned what addition is by using our fingers to add some on one hand with fingers from the other hand. Before learning what addition is, we would use our fingers to show numbers. You can show 8 with 5 fingers on one hand and 3 on the other, or you can show 8 with 4 fingers on both hands. This is how I was able to introduce addition. I showed students that, either way you hold your fingers, you will still get 8. I realize that I don't have the pressure of memorizing facts, but this grade level has helped me reflect on the importance of developing "Fluency in numbers." My goal is to get kids to understand the many ways to see a number: numerals, dots, ten frames, number lines, tally marks, etc. Students are thriving using all the different models and starting to understand how numbers can relate. It is fun to see them doing addition and sometimes subtraction, and they don't even realize it. For example, when I show a ten-frame of 9, many students know that 1 is missing, so that is 9. They are doing 10-1 and didn't even realize it. Likewise, they may see 6 as one full row of 5 and one more, which is 5 + 1.

Changing grade levels has changed my perspective and allowed me to see numbers differently. I challenge you to think about numbers and how you use them in your classroom. Is there a simple tweak you can make to your classroom to provide a better math experience for your students?

Jodi Neuharth SDCTM Elementary Liason Jodi.Neuharth@k12.sd.us "I challenge you to think about numbers and how you use them in your classroom."



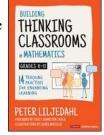
Higher Ed Viewpoint

What does it mean to be a mathematician? According to the Bureau of Labor Statistics, "Mathematicians and statisticians work with formulas and data to help solve problems in industry, academia, and government. Mathematicians and statisticians analyze data and apply computational techniques to solve problems." According to an AI search about what a high school student might say about math, "A high school student might say that math is either a challenging but rewarding subject that helps them think critically, or a subject that is confusing, irrelevant, and time-consuming, depending on their individual experience and aptitude." According to another AI search, a mathematics teacher might say "that mathematics is a fundamental subject that builds essential critical thinking and problem-solving skills, which are valuable in all areas of life and future careers. They might also emphasize the importance of understanding concepts, not just memorizing formulas, and encourage students to embrace challenges and see mistakes as learning opportunities." So, how do we reconcile what it means to be a mathematician and students' and teachers' perspectives of mathematics with the reality of teaching? The answer might be found in utilizing a more active learning environment.



In September 2024, I presented a workshop at the NCTM Annual Conference in Chicago on incorporating the ideas from Peter Liljedahl's book "Building Thinking Classrooms in Mathematics" (BTC) into my Calculus course called "Students Learn Calculus By Doing Calculus." Then, in February 2025, I gave a talk at the NCTM Regional Conference in Kansas City

and helped my graduate student with her workshop on how BTC has impacted our teaching. With over 80 people at each session, we had opportunities to answer questions, facilitate discussions, and hear from other participants incorporating BCT concepts in their classes. In addition to our sessions, many of the talks at both conferences focused on how teachers are trying to implement more active learning strategies in their mathematics courses, with many using the teaching practices found in Peter Liljedahl's book.



Changing the perspectives of mathematics or what a mathematician does is difficult. But perhaps if the math in our classrooms more closely mimicked what we want a mathematician to do, we could persuade more students of the importance of what they are learning.

If you want to learn more about BTC, the SDCTM Summer Symposium is for you. This year, it will be held on Tuesday, July 15^{th} , at Dakota Wesleyan University from 8 am – 4 pm. The symposium would be an opportunity to learn more about BTC, connect with colleagues interested in using BTC, and hear from an expert on using BTC in a mathematics classroom.

Christine Larson SDCTM Post-Secondary Liaison Christine.Larson@sdstate.edu Page 3





"...perhaps if the math in our classrooms more closely mimicked what we want a mathematician to do, we could persuade more students of the importance of what they are learning."

Presidential Award for Excellence in Mathematics and Science Teaching

Announcing the 2025 Math and Science PAEMST Finalists!

<u>Ally Bowers</u>, a high school science teacher at Lyman High School in Presho, SD has been teaching for 9 years. Currently, she teaches four science courses: Earth & Space Science, Biology, Chemistry, and Anatomy & Physiology. Ally graduated from University of South Dakota with a Bachelor of Science Degree in Biology Education in 2014 and earned her Master's at Montana State University in 2021. Ally's leadership positions include President of the South Dakota Science Teaching Association since 2024, along with SD

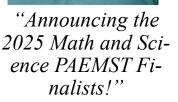
STEM ED Conference Hospitality Coordinator, Board Member Liaison, and newsletter contributor since 2015. She has been a mentor for the Department of Education Mentoring Program and part of the SDMath SDSci Leadership Cohort. At Lyman High School, Ally is the HOSA advisor. Ally empowers students to see themselves as science people to reach their fullest potential.

Jackie Knox, a teacher at Highmore Harrold High School in Highmore, SD. There she has teaches Physical Science, Biology, Chemistry, Physics and AP Biology and has been teaching for 26 years. Jackie attended the University of Colorado and graduated Cum Laude with a Bachelor of Science Degree in 1997. Jackie earned her National Board Certification in 2008 and is also certified as a Dyscalculia Tutor. Jackie brought AP programs to Highmore Harrold High School, served as Chair for

NCA Committee and participated in the National Conference. She serves as HO-SA advisor. She is the recipient of the 2016 Rual Education Grant and 2017 Daniel Swets Robotics Grant. Jackie has also published three children's books with science and math-based themes. Jackie inspires lifelong curiosity and a love for learning.

<u>**Tiffany Kroeger</u>** currently teaches biology, chemistry, conceptual physics, physics, anatomy and physiology, and advanced biology at Montrose Middle and High School. She has been teaching for 16 years. Tiffany graduated with a Bachelor of Science in Biological Sciences with a Chemistry Minor from South Dakota State University in 2009. Tiffany was a finalist in 2019 for the Presidential Award for Excel-</u>

lence in Science Teaching, a Sanford Educator Research Fellow in 2013 and a Rural Enhancement of Mathematics and Science Teachers Scholar from 2008-2009. Tiffany currently is the secretary for the South Dakota STEM ED Conference and South Dakota Science Teaching Association Board. She is also an advisor for the Montrose School District National Honor Society. Previously, Tiffany mentored REMAST and the SD Department of Education Statewide Mentoring Program. She was also a Sanford Promise Ambassador. Tiffany excels at creating an engaging, inclusive environment that fosters critical thinking and growth.







Page 4



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PAEMST (continued)

Sheila McQuade, a high school mathematics teacher at Bishop O'Gorman High School in Sioux Falls, SD, has been teaching for 38 years. She currently teaches Geometry, Intermediate Geometry, Algebra IA, and Algebra. Sheila graduated from Augustana College with a Bachelors degree in both Mathematics and French. She completed her Masters in Education degree with an emphasis in Technology from Augustana University in 2014. Sheila has held a variety of leadership positions in the South Dakota Council of Teachers of Mathematics and currently serves as SD STEM Ed Conference Registrar and Treasurer. She has provided professional development opportunities for other teachers during the conference



and at various times throughout the school year. At Bishop O'Gorman High School, Sheila has served as Class Advisor, Peer Support Advisor, Students for Life Advisor, and has participated on NCA/School Improvement committees and District Level Committees. Sheila has dedicated her teaching career to supporting students of all educational levels in believing that they can be successful in mathematics.

Jeff Rademacher, a high school mathematics teacher at Estelline High School in Estelline, SD, has been teaching for 15 years. He currently teaches Algebra I and II, Geometry, and Consumer Mathematics. Jeff graduated from South Dakota State University with a Bachelors degree in Mathematics Education. He completed his Masters degree in Curriculum and Instruction in 2016 from Walden University. Jeff has served as a pre-service mentor teacher, a new teacher mentor, has successfully applied for and received a grant to begin a Math Counts group, and has enjoyed building relationships with students through his coaching duties.



The Presidential Award for Excellence in Mathematics and Science Teaching (PAEMST) is the highest recognition that a kindergarten through 12th grade mathematics or science teacher may receive for outstanding teaching in the United States. Since 1983, more than 5,200 teachers have been recognized for their contributions to mathematics and science education. Awardees serve as models for their colleagues, inspiration to their communities, and leaders in the improvement of mathematics and science education.

Presidential awardees receive a citation signed by the President of the United States, a trip to Washington DC to attend a series of recognition events and professional development opportunities, and a \$10,000 award from the National Science Foundation. We are eagerly awaiting an announcement from the White House recognizing outstanding mathematics and science teachers from previous cylces!

Anyone--principals, teachers, parents, students, or members of the general public-may nominate a teacher by completing the nomination form available on the PAEMST website. For more information, please visit <u>www.paemst.nsf.gov</u>. The nomination window will be open this Fall to recognize K-6th grade mathematics and science teachers.

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Ann Anderson SD PAEMST Science Coordinator Ann.M.Anderson@k12.sd.us 605.639.3102 Page 5

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NCTM Representative Tips

Hi everyone! My name is Kevin Smith and I'm your new NCTM rep for SDCTM! Super excited to be on board and keep you in the loop with all things NCTM. Let me give you the quick rundown on me, then we'll dive into some NCTM stuff.

About Me: I'm a professor at Dakota State University. I teach future math and STEM teachers, and I work with grad students in our education and tech program. I've been at DSU for 12 years. Before this, I was a high school math teacher in Nebraska and then I spent several years as an Instructional Designer. I've always loved thinking about how to make math meaningful, fun, and relevant for every-one!

NCTM News and Opportunities: Here are some things that are happening and what you might want to know about.

- **Public Ed Support:** NCTM teamed up with English (NCTE), social studies (NCSS), and science (NSTA) teacher groups to tell the federal government to support public education. The statement expressed deep concern over federal efforts to dismantle public education, highlighting its role as a cornerstone of democracy and opportunity.
- Your Voice Matters: NCTM wants to hear your stories! How are things really going in your classroom? Are any new policies messing with your work or your students? Share your experiences here: https://bit.ly/nctm-share
- Money, Money, Money! Got a brilliant idea you need funding for? NCTM has grants for everything from professional development to innovative lesson plans. With summer around the corner, now's a great time to check out your options: https://www.nctm.org/funding/
- **Conference Info:** The NCTM Annual Meeting and Expo is scheduled for Atlanta, October 15-18, 2025. The conference theme, "Lessons and Legacies: Stories of Creative Pedagogy," should be a great experience if you have the opportunity to attend. Having recently presented at the spring conference in Kansas City, I can attest to the value these events provide. I think conferences, whether our own STEM conference in Huron, the TIE conference in Sioux Falls or Rapid City, or the NCTM events, are a great way to fuel our passion for teaching. They consistently offer new insights and strategies that can be directly applied in the classroom, and they provide valuable opportunities to connect with fellow educators that love what they do. I hope you have an opportunity to attend a conference this year!

Kevin Smith <u>Kevin.Smith@dsu.edu</u> Instagram: @kevinsmithsd Page 6





"Got a brilliant idea you need funding for? NCTM has grants for everything from professional development to innovative lesson plans."

2025 SD STEM Ed Conference

To all those that gave one or more presentations at our February Conference, *Thank you - Thank you so much* - The time & energy you invested in our Conference has been met with great gratitude. Thank you so much for planning, creating, traveling, and presenting to our SD teachers!!! From the



surveys that have come in so far - your efforts were greatly appreciated. The conference went perfectly (with very minor technology problems that will be fixed by next year). It was such a pleasure and honor to work with you and sit in on various sessions. There is just no way that I can express my thanks for everything that went smoothly. One of the last things the Joint Committee did was to draw one winner for a free conference registration for next year's conference. It's scheduled to take place on February 5, 6, & 7, 2026. Please mark your calendars to again submit a session proposal - form will be live & online starting sometime this summer through the end of October. The *speaker winner* of next year's paid registration to the conference was a session of Making Tests Meaningful - *Congrats to Kelly Coates*.



A second *Thank You* goes out to the *Exhibitors* that support our conference. They give us an opportunity to talk about & see their products and many of them give out pens, notepads, candy & other items to keep us moving forward. Thanks!



AND lastly, *THANKS* to all the participants. You make all our efforts worthwhile. For those that completed the end of conference survey, we also draw one winner of a conference registration for next year. That winner is *Allison Schmitz. Congrats*!

February 5-7, 2026 SD STEM Ed conference submission form will be online by summer. *James.Stearns@k12.sd.us*

Did you know SDCTM is tech-savvy?

Social media is a great way to reach out to fellow math teachers across the state. If you have questions about an upcoming lesson, these platforms are a great way to ask! Additionally, if you just finished a rock star lesson, social media is a great way to share your success!

Let's make our social media presence heard, SD Math Teachers!

You can follow SDCTM on the following social media platforms:



Instagram: SDCTM_Math



Facebook: South Dakota Teachers of Mathematics



X (Twitter): @SouthDakotaCTM



Be sure to watch for updates on all platforms!

Student's Guide To Problem Solving (with apologies to George Polya) (Author Unknown)

- 1. If at all possible, avoid reading the problem. Reading the problem only consumes time and causes confusion.
- 2. Extract the numbers from the problem in order in which they appear. Be on the watch for numbers written in words.
- 3. If rule two yields three or more numbers, the best bet for getting the answer is adding them together.
- 4. If there are only two numbers that are approximately the same size, then subtraction should give the best results.
- 5. If there are only two numbers in the problem and one is much smaller than the other, then divide. (If it divides evenly, otherwise multiply.)
- 6. If the problem seems like it calls for a formula, pick a formula that has enough letters to use all the numbers given in the problem.
- 7. Never, never spend too much time solving problems! This set of rules will get you through even the longest assignment in the minimum of time with little or no thinking!

Submitted by: Cindy Kroon, Montrose High School



"Social media is a great way to reach out to fellow math teachers across the state."

Page 8

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South Dakota Council of Teachers of Mathematics

SYMPOSIUM

Featured Presenter: Jessica Strom

"BUILDING THINKING CLASSROOMS: THE NEXT STEPS"

Building a Thinking Classroom is a work in progress. After the basics (Visibly Random Groups, Vertical Surfaces, and Tasks), there are 11 other practices. This workshop will explore the next steps in improving your practice. Some of the main topics we will explore are: creating your own tasks, managing groups, answering questions, supporting the flow of a task, and finishing a task.

Participants are able to earn* Graduate credit from DWU. More information will come out in June.

*For an additional fee paid directly to DWU

JULY 15, 2025

EVENT DATE

NCH INCLUDED IN FEE³

.20

NON-MEMBER

MEMBER

8AM-4PM

DAKOTA WESLEYAN UNIVERSITY, MITCHELL SD



Don't Delay! Registration will be capped at 42 (min 25) Registration deadline is June 10th 2025

SD STEM Leadership

Applications Due April 4, 2025 – Now EXTENDED to April 24, 2025

SD STEM Leadership is a program by South Dakota E-CORE to create and support a dynamic network of South Dakota K-16 STEM educators. SD STEM Leadership challenges, develops and educates South Dakota STEM educators who have an interest in developing leadership skills related to STEM education. SD STEM Leadership is designed around the following goals:

- Build and broaden community through intentional networking.
- Grow professionally and personally by focusing on problem solving, innovation, leadership, systems thinking, change, and efficacy.
- Create a shared knowledge base for leadership, including advocacy, effective instruction, clarity about STEM, and research-based practices.
- Increase awareness of and connections to current STEM research in South Dakota.
- Appreciate that all the above goals are critical to shaping a vision where all students in South Dakota consistently experience rigorous, relevant, and engaging STEM instruction.

Application Process:

Ideal candidates for the SD STEM Leadership Program aspire to grow professionally, challenge their thinking and practice, and be a leader/ advocate for effective STEM education. Applicants must teach or co-teach a STEM discipline. This includes teachers who teach any STEM content area (e.g., science, math, computer science) or an integrated one (e.g., STEM) as part of their day. The application process is designed to ensure a cohort that consists of members from a wide range of experiences and geographical locations. Approximately 30 participants will be chosen annually. A completed application requires submission of 3 components:

- Application Due Friday, April 4, 2025 by 5:00 p.m. Now EXTENDED to April 24, 2025 https://forms.gle/a4zPi7swqim9Yirp8
- Letter of Recommendation Due Friday, April 4, 2025 by 5:00 p.m. Now EXTENDED to April 24, 2025 https://forms.gle/jDSe7gSkcGZuaCvRA
- Administrator Support Statement Due Friday, April 4, 2025 by 5:00 p.m. Now EXTENDED to April 24, 2025 <u>https://forms.gle/TQPyPWcY5nVDJAvx5</u>

Program Meeting Dates

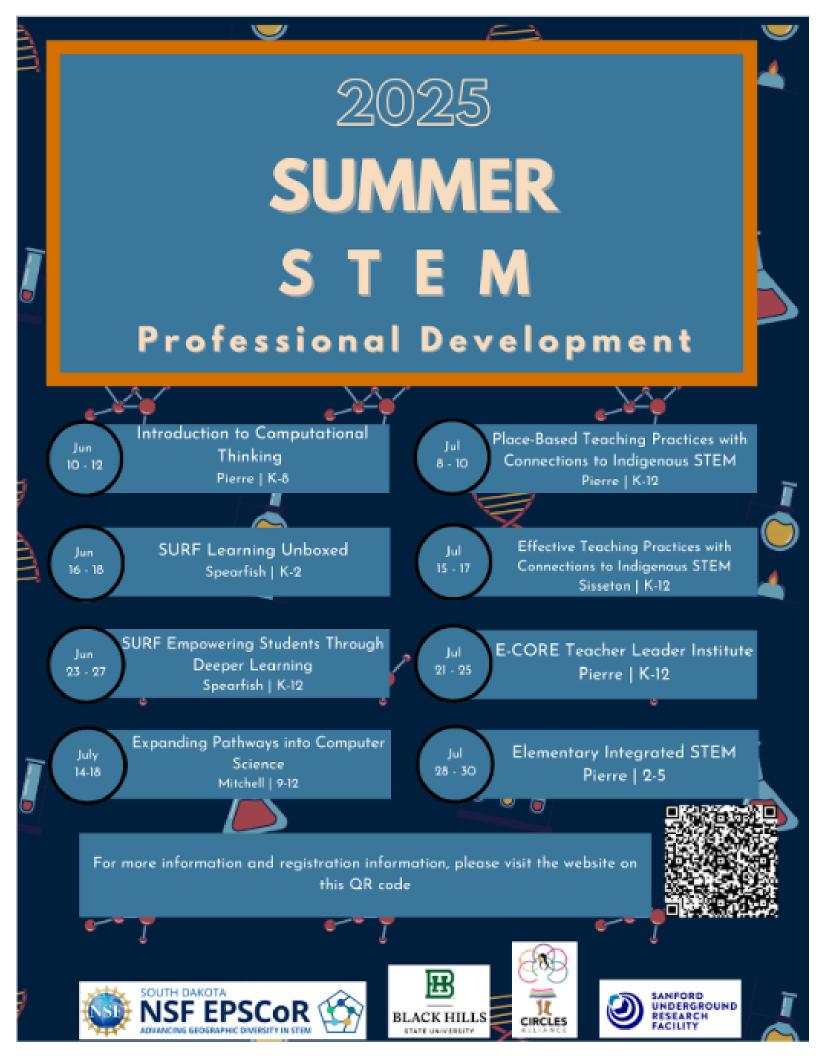
Upon selection, participants will be expected to attend all the following meetings:

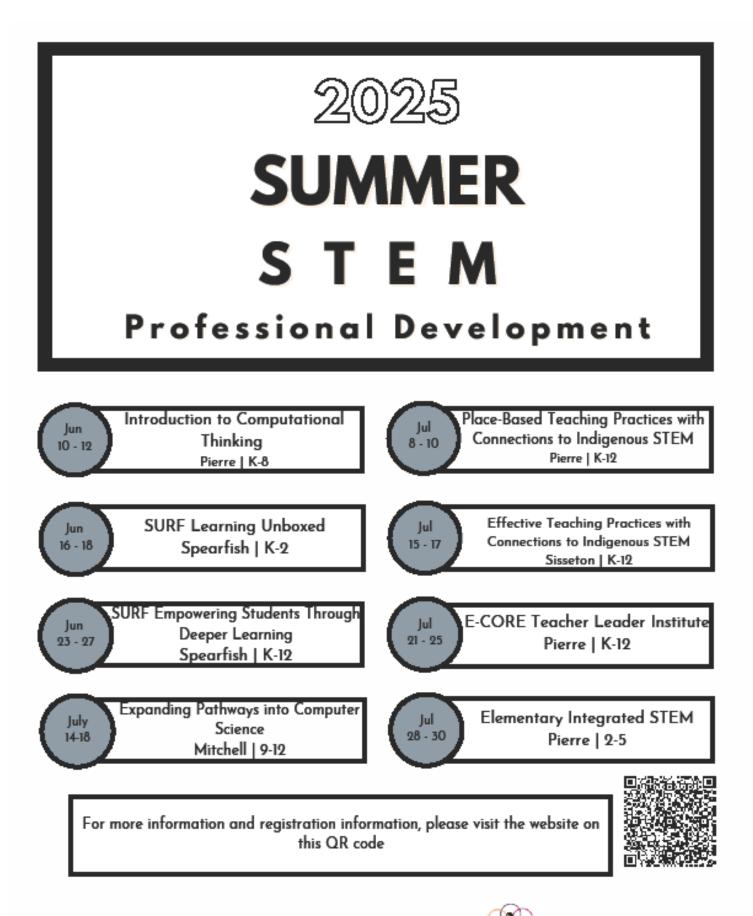
- Retreat 1- July 21 25, 2025 in Pierre, SD
- Retreat 2 October 18-19, 2025 in Rapid City, SD
- Retreat 3 February 6-8, 2026 in Huron, SD (optional attendance on Feb. 6 at SD STEM Education Conference)

Costs

The registration cost of SD STEM Leadership = FREE. The SD E-CORE grant is able to cover hotel, mileage, meals and a learning stipend for each of the retreats.

For additional questions about the SD STEM Leadership Program, email Nicol Reiner (<u>NReiner@sanfordlab.org</u>) or Kim Webber (<u>Kim.Webber@bhsu.edu</u>).













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<u>www.sdctm.org</u>